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PROFESSIONAL AFFILIATION

Frontiers in Endocrinology (JCR IF 3.675)

Guest Editor

Laboratory Animal Research, KALAS

Associate Editor

ACADEMIC POSITION

Yonsei University College of Medicine (2017~present)

Dept. of Severance Biomedical Science Institute

Associate professor

Sejong University (2015~2017)

Dept. of Bioscience and Biotechnology

Assistant professor

TRAINING BACKGROUND

The Salk Institute for Biological Studies (2008~2015)

Post doc., Dept. of Gene Expression Laboratory

Advisor: Ronald M Evans, Ph.D.

EDUCATIONAL BACKGROUND

University of Illinois at Urbana-Champaign (2003~2008)

Ph.D., Dept. of Molecular and Integrative Physiology

Advisor: J. Kim Kemper, Ph.D.

Seoul National University (1995~1999)

B.S., Dept. of Molecular Biology

Daewon Foreign Language High School (1991~1994)

Dept. of French

MILITARY SERVICE

Defense Security Command, Republic of Korea (1999~2001)

Secretary of the Lieutenant Commanding General

RESEARCH INTERESTS

Metabolic syndromes and Cancer metabolism

Type I & II diabetes, Non-alcoholic fatty liver disease (NAFLD), Non-alcoholic steatohepatitis (NASH)

Metabolic pathways in cancers, including colorectal, gastric, breast and pancreatic cancer

SELECTED PUBLICATIONS

- 1) Yoon Y, Kim G, Noh M, Park J, Jang M, **Fang S***, Park H* (2020) Lactobacillus fermentum promotes adipose tissue oxidative phosphorylation to protect against diet-induced obesity. *Exp Mol Med* 52(9):1574-1586 (*Corresponding author)
- 2) Jeong JW, Kim M, Lee J, Lee HK, Ko Y, Kim H*, **Fang S*** (2020) ID1-mediated BMP signaling pathway potentiates glucagon-like peptide-1 secretion in response to nutrient replenishment. *Int. J. Mol. Sci.* 21(11):3824 (*Corresponding author)
- 3) Jang SI*, **Fang S***, Baek YY, Lee DH, Na K, Lee SY, Lee DK (2020) Local delivery of gemcitabine inhibits pancreatic and cholangiocarcinoma tumor growth by promoting epidermal growth factor receptor degradation. *Int J Mol Sci.* 21(5):1605 (*1st author)
- 4) Oh SK, Kim Dm Boo K, Yu YS, Kim IS, Jeon Y, Im SK, Lee SH, Lee JM, Ko Y, Lee H, Park D*, **Fang S***, Baek SH* (2019) ROR α is crucial for attenuated inflammatory response to maintain intestinal homeostasis. *Proc Natl Acad Sci USA* 116(42):21140-21149 (*Corresponding author)
- 5) Jang SI*, **Fang S***, Kim KP, Kim H, Oh J, Hong GY, Lee SY, Kim JM, Noh I, Lee DK (2019) Combination treatment with n-3 polyunsaturated fatty acids and ursodeoxycholic acid dissolves cholesterol gallstones in mice. *Sci Rep* 9(1):12740 (*1st author)
- 6) Fu T, Coulter S, Yoshihara E, Oh TG, **Fang S**, Cayabyab F, Zhu Q, Zhang T, Leblanc M, Liu S, He M, Waizenegger W, Gasser E, Schnabl B, Atkins AR, Yu RT, Knight R, Liddle C, Downes M, Evans RM (2019) FXR regulates intestinal cancer stem cell proliferation. *Cell* 176(5):1098-1112
- 7) Hong SH, **Fang S**, Lu BC, Nofsinger R, Kawakami Y, Castro GL, Yin Y, Lin C, Yu RT, Downes M, Izpisua Belmonte JC, Shilatifard A, Evans RM (2018) Corepressor SMRT is required to maintain Hox transcriptional memory during somitogenesis. *Proc Natl Acad Sci USA* 115(41):10381-10386
- 8) Wei Z, Yoshihara E, He N, Hah N, Fan W, Pinto AFM, Huddy T, Wang Y, Ross B, Estepa G, Dai Y, Ding N, Sherman MH, **Fang S**, Zhao X, Liddle C, Atkins AR, Yu RT, Downes M, Evans RM (2018) Vitamin D switches BAF complexes to protect β cells. *Cell* 173(5):1135-1149
- 9) Kim K, Boo K, Yu YS, Oh SK, Kim H, Jeon Y, Bhin J, Hwang D, Kim KI, Lee JS, Im SS, Yoon SG, Kim Y, Seong JK, Lee H, **Fang S***, and Baek SH* (2017) ROR α controls hepatic lipid homeostasis via negative regulation of PPAR γ transcriptional network. *Nat Commun* 8(1):162 (*Corresponding author)
- 10) Yoshihara E, Wei Z, Lin CS, **Fang S**, Ahmadian M, Kida Y, Tseng T, Dai Y, Yu RT, Liddle C, Atkins AR, Downes M, Evans RM (2016) ERR γ is required for the metabolic maturation of therapeutically functional glucose-responsive β cells. *Cell Metabolism*, 23(4):622-34

- 11) Bapat SP, Suh JM, **Fang S**, Liu S, Zhang Y, Cheng A, Zhou C, Liang Y, Leblanc M, Liddle C, Atkins AR, Yu RT, Downes M, Evans RM, Zheng Y (2015) Depletion of fat-resident Treg cells prevents age-associated insulin resistance. *Nature*, 528(7580):137-41
- 12) **Fang S**, Suh JM, Reilly SM, Yu E, Osborn O, Lackey D, Yoshihara E, Jacinto S, Lukasheva Y, Atkins A, Khvat A, Schnabl B, Yu RT, Brenner DA, Coulter S, Liddle C, Schoonjans K, Olefsky JM, Saltiel AR, Downes M and Evans RM (2015) Intestinal FXR agonism promotes browning and reduces obesity and insulin resistance. *Nature Medicine*, 21(2):159-65
- 13) Kim YC, **Fang S**, Byun S, Seok S, Kemper B and Kemper JK (2015) FXR-induced lysine-specific demethylase, LSD1, reduces hepatic bile acid levels and protects the liver against bile acid toxicity. *Hepatology*, 62(1): 220-31
- 14) **Fang S** and Evans RM. (2013) Wealth management in the gut. *Nature* 500:538~539
- 15) **Fang S**, Suh JM, Atkins AR, Hong S, Leblanc M, Nofsinger RR, Yu RT, Downes M and Evans RM (2011) Corepressor SMRT promotes oxidative phosphorylation in adipose tissue and protects against diet-induced obesity and insulin resistance. *Proc. Natl. Acad. Sci. USA*. 108(8):3412~7
- 16) Kanamaluru D, Xiao Z, **Fang S**, Choi SE, Kim DH, Veenstra TD and Kemper JK. (2011) Arginine methylation by PRMT5 at a naturally-occurring mutation site is critical for liver metabolic regulation by Small Heterodimer Partner. *Mol. Cell. Biol.* 31(7):1540~50
- 17) Kemper JK, Xiao Z, Ponugoti B, Miao J, **Fang S**, Kanamaluru D, Tsang S, Wu SY, Chiang CM, and Veenstra TD (2009) FXR acetylation is normally dynamically regulated by p300 and SIRT1 but constitutively elevated in metabolic disease states. *Cell Metab* 4;10(5):392~404
- 18) Miao J, **Fang S**, Lee J, Comstock C, Knudsen SE and Kemper JK (2009) Functional specificity of Brm and Brg-1 Swi/Snf ATPases in the feedback regulation of hepatic bile acid biosynthesis. *Mol. Cell. Biol.*, 29(23):6170~81
- 19) **Fang S**, Tsang S, Jones R, Ponugoti B, Yoon H, Wu S, Chiang M, Willson T, and Kemper JK (2008) The p300 acetylase is critical for ligand-activated FXR induction of SHP. *J.Biol Chem.*, 283:35086~95
- 20) Ponugoti B, **Fang S** and Kemper JK (2007) The lipogenic factor SREBP-1c suppresses bile acid biosynthesis by blocking the functional interaction between HNF-4 and PGC-1 α . *Mol. Endocrinology*, 21(11):2698~2712
- 21) **Fang S**, Miao J, Xiang L, Ponugoti B, Treuter E and Kemper JK (2007) Coordinated recruitment of histone methyltransferase G9a and other chromatin-modifying enzymes in SHP-mediated regulation of hepatic bile acid metabolism. *Mol. Cell. Biol.* 27(4):1407~24
- 22) Miao J, **Fang S**, Bae Y and Kemper JK (2006) Functional inhibitory cross-talk between CAR and HNF-4 in hepatic lipid/glucose metabolism is mediated by competition for the binding to

DR1 motif and to the common coactivators, GRIP-1 and PGC-1 α . *J Bio.Chem.*, 281(21):14537~46

- 23) Bhalla S, Ozalp C, **Fang S**, Xiang L and Kemper JK (2004) Ligand-activated PXR interferes with HNF-4 signaling by targeting a common coactivator PGC-1 α : Functional implication in hepatic cholesterol and glucose metabolism. *J.Biol.Chem.*, 279:45139~47